4: Joseph et al D,E-5 (1942-1943) 1949
NU28 Papago NU28

oak country to gather acorns. In August another variety of wild greens was ready to eat, and, finally, in September the prickly pear ripened. 222

Without domesticated animals, the Desert People depended on wild life for their meat, which they dried and stored or ate fresh. All through the year the hunters went out after bighorn sheep, deer, peccary, and rabbits. 224

This was a way of life in which everyone had to work in order to eat. Someone had to sow the seed or protect the crops while others were gathering wild plants, and, while some of the family were gathering acorns or saguaro fruit, others might be off hunting. And always there was the work at preparing food for eating or storage, making clothes and utensils, and the general business of keeping a family going; small wonder that industry was thought of as a cardinal virtue, for the lazy man would starve and bring others to the verge of starvation. Nor is it surprising that families were strongly cohesive, that they included people other than father, mother, and children, or that babies were welcomed. The more hands, the more co-operative work, the more food. We shall see later that these values remain powerful factors in Papago society today. 461

FIRST WHITE INFLUENCES ON PAPAGO TECHNOLOGY

When Father Kino came up from Mexico in 1700, he brought cattle and horses, oxen and wooden plows, wheat, peas, lentils, and *garbanzos*. These the Papago accepted according to their own pattern. It is possible that they simply turned the cattle loose and hunted them much as they had always hunted deer.[1] At any rate, for years there were semiwild cattle in the southern and eastern parts of what is now the Papago Reservation. The wheat and legumes fitted more naturally into the Papago pattern. They were planted in winter in the same fields used in summer for corn, so that there were now two growing seasons instead of one, which somewhat regularized the food supply. 177

Horses were very useful, easing the difficulty of the semiannual treks from mountain to valley and return and shortening the traveling time between villages. However, like many other tribes, the Papago attached to the horse a value quite out of proportion to its usefulness, and ownership of horses became a source of prestige. Horses and cattle were individually owned, in contrast to land, to which an individual had a right only while he was using it. 231 422

1. Ruth Underhill, "Acculturation at the Papago Village of Santa Rosa," p. 12. In contrast, a group of Indians in northern Mexico closely related to the Papago, who were completely "missionized," used white methods of handling stock; yet they violently resisted white encroachments, even to the point of bloody revolt.

4: Joseph et al D, E-5 (1942-1943) 1949
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231 422 Thus the concept of individual ownership began to infiltrate established concepts of use-ownership by the group.

231 177 Horses also made possible further contacts with white ways. When crops failed in Papaguería, the Papago of the southern villages often rode down into Mexico to work for ranchers. There they learned something of white methods of livestock care but, more important, were introduced to the idea of working for pay. Payment was always in kind—seed, knives, or other necessities—but the situation was quite different from co-operative labor for group subsistence. People in the northern villages who worked for the Pima Indians, whose irrigated fields produced plentiful harvests, were paid in grain.

177 Thus, well into the twentieth century, Papago ways of making a living remained fundamentally unchanged. The Desert People became familiar with the white man's use of domesticated animals, his grains, and his traditions of individual ownership and paid labor; but these things did not violently disturb their way of life. Papago life went on, little changed from its course during the last three hundred years.

THE RESERVATION ECONOMY

177 With the establishment of the Reservation in 1917, and particularly with the change in Indian Service policy in 1933, the shape of things began to change in Papaguería. In the shift from an economy of only semisedentary farming with a few half-wild cattle to one of agriculture, livestock, and wage labor, the government has played a leading role.

The improvements necessary for this shift have been made or supervised by the Indian Resources Branch of the Agency staff, consisting of the Soil and Moisture Control, Forestry and Grazing, and Extension departments, and by the Engineering Branch, including Roads, Irrigation, and Construction and Maintenance departments. Their job is to show the Papago how to utilize his own limited resources most efficiently and to assist him in developing new ones.

177 491 The building and improvement of roads and trails have been important contributions to Reservation economy. From 1933 until 1943, seventy miles of primary road and forty miles of secondary road have been constructed by the Roads Division. The CCC constructed nearly two hundred miles of truck trails. But, according to Agency estimates, less than half of the needed roads have been built, and thirteen of the thirty-six villages of more than fifty inhabitants have no roads.

177 312 To improve the water resources of the Reservation, the government drilled deep wells at many villages, thus assuring a year-round water supply and

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

making unnecessary migrations between valley and mountains. *Charcos* were built or improved, small dams erected in water courses, and other improvements made in water conservation, under the supervision of both the Engineering and the Resources branches. 177 312

In this arid country without year-round streams, large-scale irrigation must come from deep wells; this is possible in only very limited areas on the San Xavier Reservation and at Chuichu at the northern tip of the main Reservation. There is some use of "*bolsas*," diked fields to which water is brought from washes or arroyos by ditch and allowed to stand and seep into the soil, thus insuring moisture for a crop, but most Papago families have flash-flood farms much like those in use for centuries, watered naturally by the spreading floods. To others water is conducted through ditches;[2] at Menager's Dam in the southwestern corner of the main Reservation sixty acres are now under ditch irrigation.

Perhaps the most important departure from old ways of making a living came through efforts of the government to make livestock the basis of the Reservation economy. The improvement of the water supply was intended to be the first step in this direction. Papago methods of handling (including those learned from early government officials) had greatly depleted a range that was originally poor. Up to about 1930 range use was irregular, and cattle moved from water hole to water hole, overgrazing the surrounding areas.[3] This overgrazing caused the disappearance of perennial grasses and their replacement by growths that offer poorer forage and do not hold the soil, thus starting serious erosion. 231 177

The Resources Branch has set up experimental farms and nurseries to determine the usefulness of various grasses and plants for this area. By such experiments it is hoped to develop plants that will hold the soil and provide good forage.

The effects of spotty range use were aggravated by the fact that the Papago ran far too many livestock. Even as late as 1943, with the more general use of the range resulting from a better water supply and despite a considerable reduction in stock, the number of animals being run on the Papago range was about twice its carrying capacity as estimated in 1939. Many of these animals were horses of negligible value.

The Tribal Council, which has seen the necessity for better and fewer

2. In line with Carter's terminology, the farmer method is "arroyo flood farming." The use of ditches is "arroyo flood irrigation" (see George F. Carter, *Plant Geography and Culture History in the American Southwest*, p. 114).

3. Data in this section are largely from United States Bureau of Indian Affairs, *Program, Papago Reservation, Arizona*, referred to subsequently by title only.

[text continues on p. 33—Analyst]

4: Joseph et al D, E-5 (1942-1943) 1949
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animals if income is to be raised and the range preserved, has been firm in insisting that the number of horses on the range should be governed by the need for them. In the face of much opposition and with the aid of jail sentence for noncompliance, they have seen to it that horses afflicted in a recent epidemic of dourine were killed and a strict quarantine maintained.

Furthermore, many of the flash-flood farms are now endangered by siltation resulting from soil erosion due to overgrazing of range lands. Hence stock reduction and the introduction of better grasses will help even those families which have no stock.

The Extension Department has been of great assistance to the Papago in improving their fields and herds. The latter has not been and will not be an easy task, for to the Desert People cattle are not a source of prestige. Cattle provide food and spot cash, but there is yet little of the attitude of making a paying business of cattle production. Furthermore, the Department will meet with at least tacit opposition for a long time, since white men's methods sometimes run counter to the old beliefs. Many Papago, for instance, think that their range is in poor condition, not because they have too many animals or because of prolonged droughts, but because so many horses have been killed off in recent years. The horse is endowed with magic powers, and the white men are only asking for trouble when they slaughter sick animals. Only long and patient education—of adults in the villages and of children in the schools—can dispel superstition. The Agency is well aware of these difficulties, and the staff has made conscientious efforts to explain and to persuade, rather than to compel, progress.

Though the quality of Papago cattle is still in need of improvement, standards have risen measurably in the past decade. Until 1930 the steer with the largest horns was considered the best; and as late as 1937 skinny Spanish cows with a horn spread of several yards, looking like great gaunt deer, still peered from mesquite thickets. Today Hereford cattle constitute most of the herds, and under the tutelage of the Agency the Council has established a tribal herd of registered bulls which individual owners may use to improve the breed.

Cattle is the largest single source of revenue, providing 36 per cent of Reservation income in 1940 (the last year before war wages and prices began to distort the normal picture), but agriculture is still the backbone of the Papago economy. Over half the twelve hundred Papago families do not own any cattle at all, and only a sixth obtain more than fifty dollars from this source in a normal year. On the other hand, almost all families do some farming. The estimated cash value of the products is small and farms only a sixth of

[Text continues on p. 35-Analyst]

4: Joseph et al D, E-5 (1942-1943) 1949
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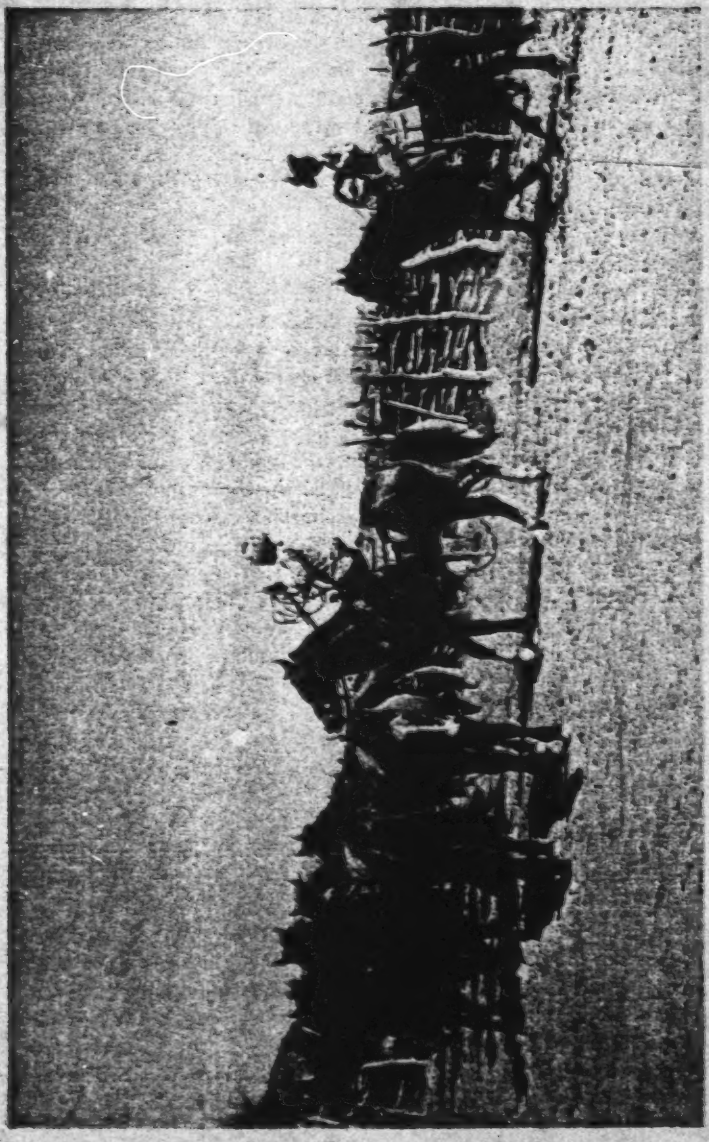
PLATE IV



ROUNDING UP THE HORSES IN THE CORRAL

Chas. Abbe

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

total Papago income, but farming furnishes basic subsistence for over three-quarters of the families on the Reservation. It is now believed that cattle will never be fundamental in Papago economy but should be regarded as a supplement to the real basis of Reservation life—farming. 434 231 241

Other sources of income are few. About 6 per cent of tribal income (including subsistence) is derived from firewood and fenceposts cut from mesquite. There are known small deposits of gold, silver, lead, and manganese on the Reservation, but they are in the hands of whites and offer nothing but a little employment to Indians, as the Papago have only surface rights to their land, and any mineral rights belong to the federal government. (Any miner may acquire rights on payment of rental of the land and fees for destruction of property.) This is a sore point with the Papago, since they are the only Indians who do not have rights to minerals under their lands.[4] 434 313 316

Handicrafts furnish a small part of tribal income—about 3 per cent. The bulk of this income comes from the sale of baskets and pottery[5] through the tribal Arts and Crafts Board, which was established under the auspices of the federal Indian Arts and Crafts Board to provide a market for Papago handiwork. Papago baskets, made of yucca, willow, bear grass, and devil's-claw, are of the close-coil type; decorative design in black and white, with occasional green or red, is simple but often strikingly beautiful in its sharp contrasts. Through assisting the Papago to improve their work and get better prices for it, the Arts and Crafts Board should help to raise Reservation income. It should also give the Desert People experience in co-operative business which may serve as a foundation for ventures in other fields. 434 285

There are a few small Papago business enterprises on the Reservation, most of them trading posts, but returns from these stores are a minute fraction of tribal income. An increasing share of Papago income is from paid labor. As previously stated, for generations the Desert People tided themselves over lean years by going to Mexico or to the Pima country to work for ranchers or farmers, who paid them in food and seed. Now, however, wage work (and cattle sales) are shifting Papago economy from a barter to a cash basis. Em- 434 [441] 464

4. The reasons for this anomalous situation are partly political. Under the Gadsden Purchase Treaty of 1854, the United States agreed to respect the laws and customs prevailing in the area under Mexican rule. Since Spanish days, mineral rights had belonged to the crown or the state. For two years (1932-34) Papago lands were withdrawn from mineral entry and claim, but renewal of the treaty provisions was made a part of the Indian Reorganization Act of 1934. Papago resentment is understandable, since some other Indian tribes derive substantial income from mineral leases. Known deposits on the Reservation are small, but there is always the chance of discoveries, since great copper deposits are being worked near by.

5. The Papago also make rawhide ropes, wooden spoons, and other articles, chiefly for their own use.

[Text continues on p. 37- Analyst]

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

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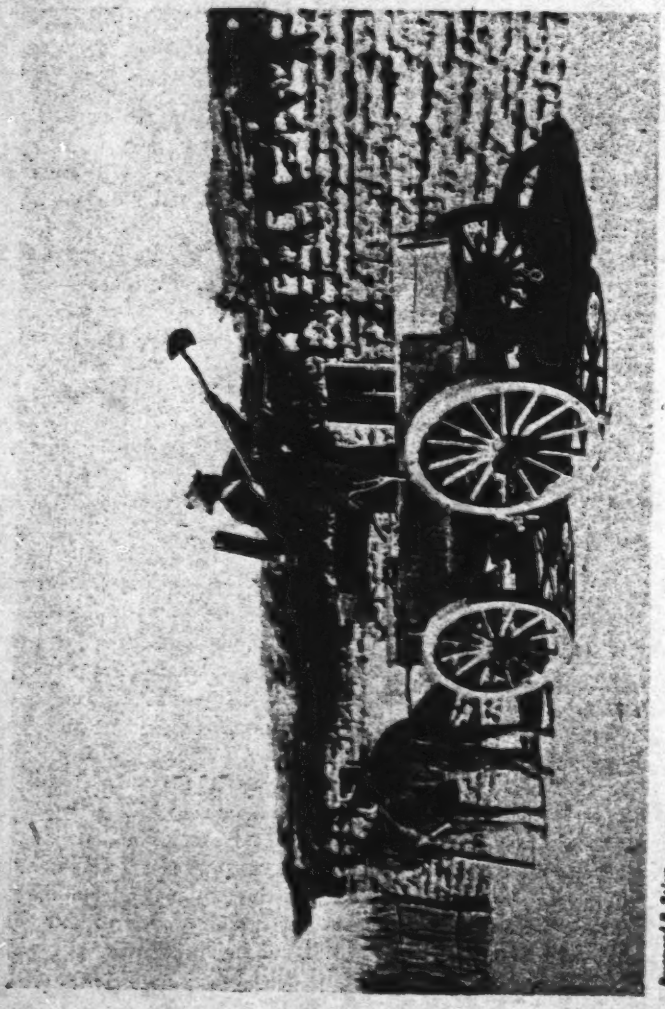
PLATE VII



REPAIRING THE DIRT ROOF

[p.43]

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

596 464 seldom asked to do so, but neglect of this obligation soon becomes known, and the offender is severely censured by persons outside the household.

423 428 596 Just as each family member does his share toward maintaining the group, so each has an interest in the means of subsistence. As previously noted, all land belongs to the tribe, and families are allowed to use as much as they need on assignment by the village or district council. Fields ordinarily continue to be used by the same family after the death of its head. All the sons inherit equally, sometimes without division. Thus, ideally, all family members, even though they are not living with the group, are entitled to use these fields as needed, but nowadays there are occasional difficulties when absent members wish to return to the land.

422 428 Cattle and horses are individually owned, although those belonging to various members of the family are usually herded together. Each family has its own brand, some small difference in the mark designating individual ownership. The head of the house may give certain animals to each of his children as they grow up, but on his death the main herd usually goes to the new head of the house unless other arrangements had been made. The tribal code of laws has provisions for wills after the white fashion, and a dispute over inheritance can be brought before the tribal court if no amicable settlement can be made otherwise.

231 868 [181] The strong attachment of the Papago to their fields doubtless dates from tribal prehistory, but cattle and horses have also become highly important since their acquisition from whites. The active life of many a Papago man centers in his horses and cattle, and they are the first interest of all little boys. In early childhood a boy begins to swing a rope and lasso stumps, piles of bedding, chickens, and dogs. He runs at a gallop, patting himself as he would a horse, or seizes a stick and canters off. Later he learns to ride, drive the horses to water, and take the reins of the family wagon. He breathes in the excitement of roping and throwing and learns to distinguish brands. Very early he knows which animals in the family herd belong to him, and he sells a steer in his turn when the family needs money. Finally, he is allowed to take part in roundups, to sleep out with the men, to listen to stories around the campfire under the clear stars. He is particularly proud of his horses; he knows that people will regard him with respect because he owns them.

231 Horses, rather than cattle, are the prestige animals. They are often of little economic value, at least in the numbers now owned by the Papago, for many more are kept than can be used in farm and range work, and a recent epidemic of dourine has prevented the sale of horses for any use but slaughter. A Papago does not ordinarily know exactly how many head of cattle he has, but he

4: Joseph et al D, E-5 (1942-1943) 1949
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knows and is proud of every horse. Cattle are merely his bank or a source of food; they are a means to an end and not, like horses, an end in themselves. 231

Together, cattle and horses furnish food, money, transportation, prestige, and the excitement of rodeo and roundup. To many a Papago a good field, enough cattle to provide occasional meat and money, a few horses for prestige, and plenty of rain would make the ideal combination. [181]

4: Joseph et al D, E-5 (1942-1943) 1949
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punctuated by an occasional fiesta,[1] a roundup, a death, or some other important occurence. Life is slow and measured, without the rush of events and the crowded calendar of people who live close together as do the Pueblo Indians. 461

WORKING TOGETHER

Although Reservation lands belong to the tribe as a whole, the land in and around each village is thought of as belonging to that community and is apportioned by the village or district council. If a man wishes to put in a new field, he must seek the consent of the village. Conversely, if a field has not been used for five years, the village can request the "owner" to take down his fences, or the request may come to the council from another man who wishes to use the field. The field or home site which remains in use is "owned" by the user, but, if he wishes to change either, he must obtain permission. Grazing areas also are thought of as belonging to the people of the village or the district, but an individual who has developed water resources virtually has first rights to the surrounding range and can shut off other people's cattle from the water. This general picture is complicated by the fact that certain areas were scheduled for allotment to individuals thirty years ago. Though the allotments were never approved, people know what land had been scheduled for them, and others hesitate to ask for its use. 621 423

Every village is organized for co-operative undertakings. For the care of their livestock, the men elect a foreman who has proved that he knows horses and cattle. This man, probably chosen from a prominent family in the village, serves, as long as he performs his tasks to the general satisfaction of the community, without remuneration. During the big [illegible]dup in October and the horse roundup in early summer (which [illegible] a small-scale cattle roundup), the foreman "works for the people", i.e., he has charge of all the proceedings—the day and place to start, the methods to be used, and all the activities to be carried on by the village men and boys. He is responsible for seeing that the proper brands are applied to calves and colts, a process that is carefully scrutinized by the cowboys. The foreman also decides what other co-operative work should be done to protect and improve the villagers' livestock; and when he thinks a corral should be built or a *charco* improved, he summons the men to come and help. 621 476 231

Another type of co-operative work is keeping the washes clear of brush and sandbanks, so that they will not turn out of their courses or deepen their channels, leaving established fields useless. All the men whose fields are 621 476 241

1. The fiesta, the chief religious and social event of village life, is described in the following chapter.

4: Joseph et al D,E-5 (1942-1943) 1949
NU28 Papago NU28

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PLATE XIII

YOUNG COWBOY

[p. 134]

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

house, they will spend hours playing around it, patting it, and leading it about. A boy of this age is delighted if someone gives him a wide-brimmed hat, a bright silk shirt, high-heeled boots, or any other part of a cowboy's regalia. 857

Little girls' play is also imitative. They enjoy the rag dolls made by mother or grandmother, and they are often seen playing house in a corner of the yard, out of the way of the women at work but within sight and call. Girls over eight are usually with the older women. Sometimes they help or run errands, but, even when not working, they prefer to stay near by, joining in the women's conversation now and then, while they amuse themselves by dressing each other's hair with ribbons, looking at snapshots or illustrated magazines, or perhaps playing records on the phonograph.

Dogs, horses, and cattle, which can bring sickness, according to Papago belief, are nevertheless played with freely, and all children play with the family dog. Papago dogs, kept as workers, not as pets, are usually large enough to scare the coyotes away from the house, but they are thin and underfed because as a rule they must forage for themselves. Adults are sometimes fond of them, but ordinarily they are kicked about and handled roughly. Kindness to animals is undeveloped among the Papago, perhaps (as Underhill has suggested), because animals have magic power and therefore have no need of special consideration by men.[2] The attitude of children toward animals reflects that of adults; they play with the dog often but are unconcerned if some trick of theirs hurts him. The adults themselves appear to be amused at the child's ingenuity and the animal's efforts to escape. 857 231 [825]

By the time children are five they need no longer be warned against handling wild animals, living or dead, for they know that disease will surely come as a result. They stay away from animal burrows and show little curiosity about the wild creatures of the desert. 857 825

Perhaps the most exciting play that the child knows comes at the fiesta. In the western districts children attend four or five celebrations a year, most of them outside their own villages. In Baboquivari fewer fiestas are given, and children do not so often attend those in other villages. As soon as the family arrives at the dance ground, the child leaves his parents to join a group of his own age and sex and returns to his mother only when he is hungry or sleepy. 857 527

Boys of five through ten seldom join in the dancing. They play around the dance ground, pretending to be cowboys, scuffling and shouting much as they would at home. Hearing the music, watching the dancers, and keeping out of the way of drunks adds to the excitement.

Little girls often start the dancing and are on the dance ground with one

2. Ruth Underhill, *Singing for Power*, p. 49.

5: Castetter & Bell N-5 (1938-1940 1942
NU28 Papago NU27
Pima NU29

ested in May or early June. This also provided a more equable seasonal distribution of farm work and furnished a crop at a period of the year which heretofore had been very lean. The Papago for a long time, however, cultivated only small amounts of wheat and it has been only within the last few generations that wheat cultivation has deeply affected them. The second is the digging of government wells convenient to many of the *temporales* and farms (beginning in 1913), in some cases with a resultant development of permanent villages around them. This also has meant termination of the annual migration to the hills which had been such a potent influence in Papago life; moreover it has made possible a more sedentary life with a sanitary water supply, and the inhabitants of villages with such wells are usually more progressive and more prosperous. Important among these changes was the third factor—introduction of cattle. While this has been a boon to the Pima, it has been of more importance directly to the Papago, particularly in the eastern part of the reservation, where the stand of grass is better and the Papago now graze cattle for both home consumption and market. A pastoral economy is well suited to a scattered population such as the Papago. Cattle did not become important among the Papago, however, until the latter part of the nineteenth century. In the southern part of their area, where they had had cattle since Kino's day, several large ranches grew up, but in the north, which retained its ancient economy in a purer form, the raising of cattle was adopted more slowly. When the Jesuits left the Piman territory many of the domesticated animals went wild. Thus these Indians early had an opportunity to secure horses and cattle—a practice which began in Kino's day.[47]

By 1904 the Papago in southwestern Pima County were making their living chiefly by stock raising, while in 1908 many in Fresnal Valley were reported as having cattle, upon

[47] Mange, *op. cit.*, p. 246.

5: Castetter & Bell N-5 (1938-1940) 1942
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Pima NU29

which they depended wholly for support. In 1919 it was estimated that the aggregate cattle holdings of the desert Papago were about thirty thousand head.[48] As late as 1846 the Pima were reported as having few cattle and these only for tillage.[49]

Pi Pa 179 231

The modern Pima have profited greatly by the introduction of cattle; today they not only raise cattle for their own use, but more commonly rent their lands for pasturing cattle owned by the whites. The grazing of custom cattle by the Pima has steadily grown since November, 1932, when six hundred were secured from the Tremaine alfalfa ranch. In 1935 approximately 55,000 such cattle were on the Gila River Reservation, and during the winter months of the same year about twelve hundred sheep also were pastured there. Many of the Pimas now work for hire, as is true with the Papago at San Xavier, at Tucson and the copper mine at Ajo. Individuals of both groups eke out an existence or supplement their meagre income by cutting and marketing dead wood. Beginning in 1933 marked stimulus was given toward acculturation, particularly among the Papago, by the appropriation of emergency conservation funds. This is having far-reaching effects upon Papago as well as Pima economy and culture; it is transforming Papago economy from a gift and barter to a money basis and gradually raising their standard of living.

* * *

Pi Pa 174 311 241

It would be highly desirable to present an accurate statement of the amount of land anciently cultivated per family among Pima and Papago as well as the total amount of crops and wild food used annually per family or per person. Due to cultural disturbances and distortions, however, it is now very difficult to arrive at exact figures. Moreover the ratio between cultivated and wild foods utilized fluctuated con-

[48] Curtis, *The American Indian*, II, 31; *Report of the Commissioner of Indian Affairs* for 1904, p. 149; *ibid.* for 1919, p. 287.

[49] Emory, *Notes*, pp. 83-5.

5: Castetter & Bell N-5 (1938-1940 1942
NU28 Papago NU28
Pima NU29

and dried for storage "some yellow-green worms." It is also mentioned by Lloyd.[107]

Lumholtz[108] described the Sand Papago as depending for their animal food upon jackrabbits, which were caught by running them down in the sand; mountain sheep, mule deer and antelope, all three killed with bow and arrow; and musk-rats, lizards, and fish obtained on the Gulf Coast. Similarly Díaz,[109] in 1774, observed that the Indians (doubtless Sand Papago) living in the sierras between El Carrizal and the Gila, in extreme southwestern Arizona, maintained themselves on deer, mountain sheep and rats (also mesquite, screwbean, pitajaya, sahuaro, tunas and certain roots). Only one of Underhill's informants, a Sand Papago from Sonora, had any recollection of mountain sheep hunting.

Mange's[110] account informs us of the poverty of some of the Papago as well as the utilization of certain animal foods not heretofore mentioned. Thus he referred in 1699 to a *rancheria* at an eddy, twelve leagues from the Eddy La Luna (in extreme southwestern Arizona), where there were thirty nude and poor Indians "who only sustained themselves with roots, locusts and other wild fruits." Also at Bacapa *rancheria* there were eighty Papagos, nude and poor, who "at times of the year they sustain themselves with shellfish." Likewise, at Basotucán (in Sonora) were nude and poor Papagos whose only sustenance was roots, some shellfish, locusts, and lizards which they called iguanas. One reference characterizes the Papago as not disdaining, in seasons of scarcity, "even snakes, lizards, and toads."[111]

The dog was really the only animal domesticated by either Pima or Papago. A few species of birds were kept captive for their feathers, especially the golden eagle (*Aquila chrysaetos*), the thick-billed parrot or macaw (*Rhynchopsitta pachyrhyn-*

[107] Lloyd, *op. cit.*, p. 124.
[108] Lumholtz, *op. cit.*, pp. 204, 330-33.
[109] Bolton, *op. cit.*, pp. 260-61, 263.
[110] Mange, *op. cit.*, pp. 265, 285, 286-87.
[111] Bancroft, *Native Races*, I, 539.

5: Castetter & Bell N-5 (1938-1940) 1942
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cha), the western red-tailed hawk *(Buteo borealis calurus)* and the western white-tailed dove *(Melopelia asiatica mearnsii)*. Velarde[112] stated that at San Xavier and neighboring *rancherías* the Indians (Sobaipuri) raised many macaws for their feathers.

The Pima situation, with reference to the utilization of native animals for food, differed in only a few respects from that of the Papago. Forty years ago Russell[113] pointed out that the Pima at that time lived upon a mixed diet in which vegetable food predominated; also, that it seemed probable the proportion of meat in their diet in the past was much greater than in his day.

The main point at which native animal food in Pima diet departed widely from that of the Papago was reliance upon fish. Papago utilized fish wherever available, but, as their territory was quite devoid of permanent streams, fish were little known. When the Gila failed, the Pima had less access to fish, but in most years they caught large numbers and this constituted a staple article of diet. However, all species utilized are regarded by the whites as poor food. The only really important fish available to the Pima were two large bony hump-backed chubs, *Gila robusta* and *G. elegans*, commonly known as bony-tail, round-tail or Gila trout. Also secured from the Gila was the sucker *(Notolepidomyzon clarkii)*, the humpback sucker *(Xyrauchen texanus)*, the white salmon of the Colorado *(Ptychocheilus lucius)*, actually a minnow, and to a limited extent the small killifish *(Cyprinodon macularius)*. At times from the San Pedro were secured the suckers *Catostomus latipinnis* and *C. insignis*. Of much less importance were the quite small chubs, *Tigoma pulchella* and *Tiaroga cobitis;* the small dace, *Agosia oscula* and *A. chrysogaster;* and the desert minnow, *Meda fulgida*. In this connection, Kino[114] found in the vicinity of Casa Grande that all

[112] Mange, *op. cit.*, p. 509; Wyllys, *op. cit.*, p. 189.
[113] Russell, *op. cit.*, p. 66.
[114] Bolton, *Kino*, I, 195.

5: Castetter & Bell N-5 (1938-1940) 1942
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Pima NU29

As the penetration of foreign animals into Pimería became very rapid soon after Kino's arrival, he quickly established a number of stock ranches with cattle, oxen, horses, mules, burros, goats, sheep and chickens.[7] A letter written by Salvatierra to Father Leal in 1699 notes that "already there are here eight species of animals from the other side, now acclimated to Loreto [in adjacent Lower California]."[8] However, as late as 1846 Emory[9] stated that the Pima had few cattle and these were used for tillage.

There is every indication that no antagonism existed on the part of the Pima-Papago to the introduction of foreign crops by the Spaniards, in fact they received them with enthusiasm. Although these Indians had a very high regard for their own ancient crops, the mere fact that the introduced ones produced well was all the justification needed for their acceptance.

The introduced crops which proved to be of greatest significance in early Piman economy were wheat, barley, watermelons and cowpeas, and in that order; the most important domesticated animals were horses and cattle. Although maize was anciently the leading crop the introduction of wheat gradually shifted the balance, and, among the Pima, wheat rather quickly came to rank first, maize second; among the Papago, maize continued to hold first place until about a hundred years ago because of the difficulty of adjusting wheat culture to the desert habitat. A perusal of reports of the Commissioner of Indian Affairs for the last third of the nineteenth century, with their tables showing the large yields of wheat in comparison with the small yields of maize for Pima and Papago, enables one to appreciate the marked extent to which wheat replaced maize in Piman economy.

In 1863 the Pima were reported as growing wheat, maize,

[7] Bolton, *op. cit.*, pp. 122-23, 143-44, 165-66, 204, 321, 357-58; II, 150, 166; Mange, *op. cit.*, p. 309; Wyllys, *op. cit.*, pp. 128-29.
[8] Bolton, *op. cit.*, p. 223.
[9] Emory, *Notes*, pp. 83-5.

6: Densmore E-5 (1920)1929 NU28 Papago NU28

(pl. 5), with which some of the most interesting legends of the Papago are associated. It is a peak in the Coyote Range. According to Lumholtz, the name Baboquivari, or Babokivari, is a Spanish corruption of Vavkivolik, meaning mountain (*sav*) narrow around the middle (*kivolik*). When seen from the south this mountain appears to be drawn in at the base.[1a]

The principal industry at Vomari is cattle raising, and the water holes are valuable, as in all desert regions. The inclosure around the water hole at Vomari village is shown in Plate 6, *c*.

Santa Rosa village was almost deserted at the time of the writer's visit, the Indians having gone to work in the fields along the Gila River. The doors of the houses were barricaded with brush (pl. 6, *a*) or with a large grinding stone. One family remained and was visited. An interesting ramada (pl. 6, *b*) was near their house.

MUSICAL INSTRUMENTS AND THEIR USE

Four musical instruments are in use by the Papago. In some classes of songs only one instrument is used and in others it is permissible to use two sorts of instruments.

1. *Gourd rattle* (*cakot*).—This was used with the songs to bring rain and with songs used in treating the sick. No other instrument was used.

2. *Scraping sticks* (*hiohkat*).—These were in pairs, one stick being slightly curved and notched, the other smooth for rasping downward and upward across the notches. Two pairs were obtained by the writer, one having 15 notches and being about 2 feet long, the other having 11 notches and being about 18 inches long. These were used with the medicine songs that come from the ocean and in the Viikita. They were used either resting on the basket-drum or held in the hand. Their use with the basket-drum is shown in Plate 7, *a*.

3. *Basket-drum* (*tamoa*).—Any basket of medium size that was in household use could be used as a drum by inverting it on the ground and striking it with the hands. The one obtained by the writer has been used for this purpose and is 16½ inches in diameter and 5½ inches in depth. Preparatory to its use the basket was dropped on the ground in such a manner as to cause an explosive sound that could be heard a long distance. Three or four men could play this instrument at once, kneeling beside it and striking it with their hands. (Pl. 7, *b*.) Some of the men might shake a rattle with the left hand. Drum and rattle were used in the *Limo* and Bat dance.

4. *Flute*.—This instrument (pl. 1) is made of cane, the outer septums removed but the middle septum retained. Two small holes are made from the outside into the bore, one on either side of the

[1a] Lumholtz, Carl, New Trails in Mexico. New York, 1912, p. 81.

7: Lumholtz N-5 (1909-1910)1912
NU28 Papago NU28

177 are found in Sonora, and the discovery of one or two
316 large placer mines has been due to these Indians.

231 The Papagoes are by no means badly off, as a rule,
511 and they manage to make a good living where, so far, the white man's efforts have failed. Their herds, adapting themselves to the arid conditions, are increasing and making the Indian prosperous and comfortable. Good mules now carry burdens which his wife or he himself formerly had to toil under; cheese is made from the milk of their cows and sold or used for their own consumption, and, above all, they have wheat and maize in sufficient quantities to last them all the year round. They
[439] also have wheat and occasionally some head of cattle to sell, obtaining in return commodities of civilized life.
[177 The white man's kitchen utensils are being acquired,
412] and the women have begun to find it more convenient to use flour than to grind the grain on the metate. No native race, though keeping its language, can help changing its ideas under such conditions. In a very few years there will be no more interest attached to the Papago than to the native descendant of the once proud Aztec in the suburbs of the City of Mexico.

191 Although the Papago in Arizona always insists upon
182 speaking his own language, still he is rapidly losing his
177 aboriginal beliefs, customs, and habits; even basketwork, for which the women of the tribe were noted, is falling into decay. Both in Arizona and Sonora the Indians have completely adopted the white man's garments.
177 Some old man may still be found in the more remote
241 parts wearing his aboriginal apparel, consisting of a

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

few minutes later the Baboquivari Range, at a distance of ten miles, was enveloped in a light fog. The change was not only seen but felt, the temperature fell, and the moisture of the air was very perceptible. As the wagon was heavy and the road led uphill, it grew late before our arrival, but the moon was half full, so we found our way easily in the now quite chilly evening. The spell of extremely dry air was broken and the season of rain showers approaching.

We made our camp next to a big mezquite tree on a slope among the ranches. The weird singing of a medicine-man sounded through the greater part of the night. Few are those Papagoes who have lost faith in their own doctors, and even the so-called policemen turn to them for relief if anything ails them.

Fresnal consists in reality of three rancherias, and we found ourselves in the middle one. They are pleasantly situated among the foot-hills and look like villages. The name is derived from some ash trees that grow in the arroyo, the native name having the same meaning. Naturally, the rainfall is greater here in the mountains than on the llano and, according to local accounts, the arroyos at times run a whole day. Occasionally the water is six feet deep. The Indians say that the arroyos here carry water to the Sonoita River.

The Indians of Fresnal are well-to-do; three or four of the men are reputed to own as many as two hundred head of cattle and fifty horses each. Wagons and good horses were seen, and there were plenty of chickens about. Men and women, especially the latter, looked in

7: Lumholtz N-5 (1909-1910)1912
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good condition; the young men were not particularly accommodating, as their interest seemed to be centred in the corral, where they were breaking in horses, separating cattle, etc. These natives had little to sell me beyond a fine basket used for harvesting sahuaro fruit. This kind of basket, which now is becoming rare, is of large size, water-tight, and is carried on the head. Its decorative designs sometimes represent the sahuaro cactus.

I visited Santiago, an old hunter, who, according to reports, used to be able to overtake deer, on the run, in half a day, and then shoot them with bow and arrow. In the hot weather these animals are not inclined to run long, as their feet become sore. Santiago is still very agile and quick in his movements and every day he goes out shooting quail, cotton-tails, jack-rabbits, and pigeons. His bow, which I secured, is made from that beautiful greenish blue bush of the desert called *condalia*. It is strengthened by an ox-tail hide pulled over it. The bow string is made from the ligaments of the back of the neck of the same animal. Arrows are made from the *amole* (yucca) flower stalk, the point being of cat-claw, tied by deer sinew.

He was also willing to be photographed. He had been to Tucson and there had gone through the experience of the camera, so he had no objection but would expect some gratuity. I took three or four snapshots with my kodak, and he asked fifty cents, which I gave him, but he demanded fifty cents for each exposure, in which I could hardly humor him. The Papagoes all have a great disinclination to being photographed, and

7: Lumholtz N-5 (1909-1910)1912
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prophet Dowie, who a few years ago made such a stir in various parts of the United States. One of his agents, a lady in Phœnix, had been instrumental in bringing this about.

[181] To understand this conversion, it must be remembered that all Indians are of a religious disposition. In their aboriginal state, while never giving up their own beliefs, the Indians have little objection to any foreign creed; the more religion the better for them. They are quite sincere about it. When these Papagoes heard of the strange teaching of the modern Elijah, it appealed to them. The world was coming to an end and they were going to get ready; people sold what little they owned and settled in the Comobabi Mountains awaiting the arrival of the new Messiah. There were from forty to fifty souls all told, men, women, and children. Ramon Cachora, who was well off, sold his two hundred head of cattle; he became the leader and they sustained themselves mainly with the proceeds of this sale. There was no white man with them. They had everything in common and their rules were strict; brandy and tobacco were forbidden. Sometimes they had services lasting the entire day. For three years they waited for the Messiah to come; then hunger broke up the sect.

231 A herd of horses and a number of cows, many with calves, that had come in to drink the night before, walked off again in the morning to pasture in the plains some six or eight miles away. I asked a man how long a time it would be before they returned and he answered: "A few will come next day, most of them the day after to-

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

morrow in the afternoon, and some will not return until 231
the third day." It was the hottest time of the year—the [132]
end of June.

Three miles from here, just about where the llano 361
begins, there rises a small hill, four hundred feet high, 192
called La Ventana. On the west side it has been fortified by the ancient people with half a dozen or more stone walls of the usual description. The walls are perhaps more massive than is the case at most places. The fortifications had a remarkably fresh look about them, as if they had been in recent use. On top, where blocks had been broken off to form walls and parapets, the underlying rock still looked as untouched by the hand of time as if the work had been done within two years. Circular or square enclosures of the usual type are seen on a natural terrace near the top. A fairly well constructed track leads up to the summit where a rattlesnake was resting in a cool cavity. A ground-squirrel was noticed, and on the hill-side two camping places of the gray fox were observed, each under a small bush, the ground having been worn quite smooth.

The vast plain is impressive from the top; the ranges, 133
enveloped in a blue haze, appeared small, Comobabi and Quijotoa in the north-west being the nearest. To the right of the Comobabi Range, in one place only, toward north north-west, the view was unobstructed as far as the eye could see. In the south-west the small hills near Sonoita were visible. The many arroyos on the west side of the Baboquivari Range are worthy of note; they are short, quite deep, and impossible for wagons to cross

7: Lumholtz N-5 (1909-1910)1912
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from eight to ten inches, not less than eight, distant from the animal. I did not notice whence the fluid came, but I observed that its left eye was bloody; in other ways it seemed normal, and had evidently not been maltreated by the dog, which feared its spines. On my return to civilization I find that the singular habit of ejecting blood from the eyes, peculiar to this animal, is known to the ranchmen of the region of its habitat, both Mexican and American, and that it also has been brought to the attention of men of science. It has been suggested that the habit is practised only during the time of the shedding of the skin.

The night spent at the next rancheria in the Baboquivari Range was disturbed by the constant, melancholy, low howling of a dog mourning the absence of the family. He was a very old dog, a black and white cur, with an honest-looking face. Usually Indian dogs have little reason for loving their masters, who show them small consideration. After having visited a new Indian settlement called San Pedro, in the Roskruge Range, where there is excellent water in a well twenty-six feet deep, we continued our trip for six miles northward along the western foot-hills. There are extensive sahuaro forests in this undulating country, which were unusually picturesque in the afternoon sun. We came across one or two camps of Indians who were gathering the much-relished fruit.

At dusk we met two young men on horseback returning from a shooting expedition, who presented us with half a deer tenderloin and some ribs. My aim was to

7: Lumholtz N-5 (1909-1910)1912
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seemed able to live here. The prevalent vegetation was, as usual, greasewood with salt bushes now and then. Low sand dunes were visible here and there.

The Pimas of Kohatk I found to be good-tempered, affable people. The women cut their hair in front so as to have bangs and they are good-looking. These natives seem to be somewhat under Roman Catholic influence and have abandoned their native feasts. Photographing was as much detested here as elsewhere. The sight of my camera would make the children take to the woods and the old men hurriedly disappear on hands and knees into their dome-shaped huts.

I heard neither English nor Spanish spoken, but the inhabitants have adopted the frontier man's way of living, frying their meat in lard and adding quantities of it to their beans. They buy white flour and make unwholesome tortillas in boiling lard. This heavy, poorly cooked food forms their daily regime, without any variety. A small bucketful of coffee is distributed at meal-time both in the middle of the day and in the evening. They possess cattle but, like most white ranchers, are too lazy to milk the cows. The meals are appropriately served on plates of cheap crockery and cups bought in the white man's stores. The participants give audible evidence of consuming more lard than is good for them, and, were the facts known, "to be as dyspeptic as a civilized Indian" would be an adage. Think of the anomaly of leaving wholesome, natural, well-cooked dishes for a diet of lard and the cheapest kinds of canned goods.

Contrary to the universally accepted opinion, the cui-

7: Lumholtz N-5 (1909-1910) 1912
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There is a large scorpion (*badrurus hirsutus*) found 136
in these parts, four and one-quarter inches long, which, however, is not as poisonous as the smaller species. Late one evening, while searching for something with my lantern, I came across one running along the ground, and which appeared at first sight to be a mouse. It was killed and left in an open vessel to be put in alcohol the next day. In the morning I found that the ever-present [231]
and hungry hens of the Indians had already taken care of it. With the exception of scorpions, there are not many obnoxious creatures in the region. Rattlesnakes, of course, there are, but they should not be classed in the same category with the rest, because they always give warning of their presence, besides being perhaps the only snakes known to be good-tempered. According to [825]
the Indians, few horses and cattle are bitten; they know the rattlesnakes and turn away when they hear the sound; dogs also know them. Children in the West have been known to lift them up unharmed, and the extraordinary performance of the Hopi Indians carrying them alive in their mouths may be called to mind. I never like to kill a rattler.

On Sunday morning, August 8, dark, nimbus clouds 821
were gathering in "threatening" fashion, as the inhabitants of countries with normal rainfall would say, but here where the very existence of the people is dependent on a few showers in July and August, they awakened joyful expectations. The prospect of rain was at that time uppermost in everybody's thoughts, day in and day out. It means success in raising crops, the filling by the

7: Lumholtz N-5 (1909-1910)1912
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578 and harmony reigned, but now all that is changing. The Indian who has to work for his living finds it hard to make [511] ends meet, and to support additional people becomes impossible, hence quarrels and unpleasant conditions begin to manifest themselves.

361 178 Formerly they lived in large rancherias, but in the last twenty years the tendency has been to scatter. They have been touched by commercialism and are now showing energy in acquiring cattle and other property. Formerly, too, a family owned a couple of cows and a horse or sometimes they had no animals, but during the last twenty years the tribe has acquired a considerable number of live-stock, often twenty cows and from ten to twelve horses to a family. Four or five families are the individual possessors of a few hundred head of cattle, but there is no difference in their mode of life from that of the rest.

178 The women are clever in adapting themselves to the new conditions. I know of an instance where the wife made a shirt for her husband without ever having learned how to cut it out, and the garment, when finished, was very creditably done. What the girls desire most to acquire at school is the knowledge of music and dressmaking. Some of them have learned at the Presbyterian schools to play the piano, which redounds much to the credit of the schools. To develop man's sense for harmony and the beautiful, whether by music or other refining pursuits, is as important as to teach him to read and write.

The Papagoes recognize the white man's superiority and have begun to make money an aim in life, which may

11: Hoover U-4, 5 (ca. 1930) 1935
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coyotes, and decayed vegetables.[14] Settled again from Tecolote, Poso Verde, situated in a semicircle of foot hills, is now one of the most pleasing of all the Papago villages.

The "trincheras" or walled fortifications on the isolated mesa four miles east of San Miguel were built by the Papago as a retreat in case of Apache raids. They are in this respect distinct from the prehistoric trincheras on the mount just south of Sells, near Poso Verde, and through the Altar Valley, described by Sauer and Brand.[15]

The most important factor in making new and smaller settlements desirable has been the introduction of cattle, dating from the journeys of Father Estubio Kino, 1691–1702, followed by those of Father Garcés, 1768–1775. Along with Christianity, Father Kino introduced cattle, horses, and chickens. Cattle did not become important with the Papago, however, until the latter part of the nineteenth century, and the extensive areas between their limited fields were of little use to them except as game preserves. By hunting and gathering in these areas, they supplemented the produce of their fields, but no inducement was offered to permanent settlement of these areas. In 1849–1850 John Audobon described the Papago as fast passing away, judging from the dilapidation of the towns and the number of empty houses.

> The people live on turtles and what game they can get. I have seen small elk and antelope skins dressed and terrapin shells are everywhere. We have bought two terrapins fresh killed, some roots, and the fruit of a plant called the manguey.
>
> Why it is that these Indians settle in such a country, I cannot conceive, for even the lizards, in most places innumerable, are scarce here. The Indians kill them with a light wand, giving them a dextrous tap on the head. They pick up the game, slip the head under a belt or string round their waists, and when sufficient are collected, a little fire is made, and this delicate repast is enjoyed by them as an epicure would relish his brace of woodcock.[16]

Audobon also described a sort of mush made of grasshoppers. The insects were caught and dried, then pounded and mixed with meal or pinole, parched wheat or corn, spiced and pounded.

Pastoralism is better suited to a scattered population, so the tendency has been for the larger villages to break up into more scattered settlements. The passing of the old Tecolote village in favor of smaller communi-

[14] J. Ross Browne, Adventures in the Apache Country (New York, 1874), p. 277.

[15] Carl Sauer and Donald Brand, Prehistoric Settlements of Sonora, with Special Reference to Cerros de Trincheras (University of California Publications in Geography, Vol. 5, No. 3, 1931), espc. pp. 67–70.

[16] Audobon's Western Journal, 1849–50 (Cleveland, 1906), pp. 148–50.

11: Hoover U-4, 5 (ca. 1930) 1935
NU28 Papago NU28

231 ties and ranches is a good illustration. Grazing has enabled the non-tillable
34 lands to be put to use, and many of the Indians prefer to live on or near
178 their grazing lands.

Other factors responsible for the passing of the old order have been the digging of wells by the government which have scattered more widely the [312] sources of dependable water, the development of mining communities, and increasing contact with the white population.[17]

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[17] There has been considerable variation in the names and spelling of names of Papago villages as given by various writers. Some revision is suggested of the names used on the government maps published in connection with Water Supply Paper 499. The Indian names are given preference in the present study, except where corruptions of them, or Spanish and American names, have become a matter of common usage. The U. S. Geographic Board has as yet taken no action concerning these names.

Special acknowledgment is due Father Bonaventura Oblasser, Superior of Franciscan Missions among Desert Papagos, for the invaluable assistance of his experience among the Papago.

17:Castetter & Underhill N,E-5 (1931-1934) 1935
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Gambel quail was the most important food bird. It was trapped in a very rough cage of split giant cactus ribs *(Carnegia gigantea)*. Mourning doves might also be caught in it though these were usually shot with arrows when they were roosting at dusk; they are still hunted and used as food. No bird eggs were ever used.

REPTILES AND WORMS

The desert tortoise *(Gopherus agassizii)*, known as *komaktcĭ'ṭ*, was not hunted but people seeing one would take it home and cook it for food.

The worms used were, when young, about an inch long and yellow, but they matured in a few days and turned green. They appeared in quantities just after or during the rainy season on any green growth, especially the amaranth *(Amaranthus palmeri)*. Everyone dropped work to gather them, for they were considered a great delicacy.

DOMESTICATED ANIMALS

The Papago pets in the old days were dogs *(Canis familiaris)* and a few species of birds. Dogs were used to guard the houses, rarely for hunting. The breed was a small white one, in build like a coyote *(Canis lestes)* but with softer fur and only half the size. Coyotes were kept as pets if captured young.

Arrow feathers were obtained from a species of hawk *(Accipiter* sp.), and these were housed in wicker cages and fed with rats and lizards. The tail feathers were pulled whenever they grew long enough. Spanish accounts speak of a number of macaws *(Ara* sp.) being kept for their feathers at San Xavier (27), but this being before Papago occupancy there is no tradition of it.

Father Kino (3) at the beginning of the eighteenth century distributed droves of horses *(Equus caballus)*, cattle *(Bos taurus)*, sheep *(Ovis aries)*, and goats *(Capra hircus)* to all his missions and to many villages where he hoped to establish missions later.

17:Castetter & Underhill N,E-5 (1931-1934) 1935
NU28 Papago NU28

231 When the Jesuits left the country most of these animals went wild, as did those of mining towns and ranches deserted through fear of the Apaches. Thus the "Pimas" early had an opportunity to secure and train horses for themselves, and this was beginning even in Kino's own time. "A few (cattle from frontier posts) remained and went wild. The mares produced colts and these the Pimas caught and raised" (18, p. 246).

The nomadic desert people seem to have had little share in this early horse era. In tales told of the grandfathers [148] of old informants, men were still going about the country by running thirty to fifty miles a day and war parties 726 were conducted on foot, "because the Apaches got horses 231 before we did." As the Apaches were gradually subdued by the Federal Government communication grew easier and horse owning spread. On the last war parties in which [492] fathers of informants took part, horses were the rule. At present scarcely any man is without a horse and many families have a wagon and team. In 1931 there were 10,700 horses to 2,679 men (21).

231 Cattle were taken up much less easily. The wild ones were killed for their meat, and especially their hide which has been the material for Papago shields and sandals for two hundred years. The Federal Government has made a policy of giving the Papagos cattle on credit, and in 1931 there were 22,930 head of grade cattle to a population of 5,228 (21). Thus riding the range has succeeded hunting as the occupation of the average young man.

17:Castetter & Underhill N,E-5 (1931-1934) 1935
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285 and weft of the soapweed *(Yucca elata)*. A form of screen door was made by joining a row of sahuaro slats by one or two rows of deer hide thong in simple wrapped weave, while for a shelf they used a narrower row of similar slats stiffened at each end by a transverse slat bound on with a thong.

285 854 The cradle board was about two feet long, made on a frame of catclaw twigs, willow twigs, or mesquite root in the shape of an elongated arch, while transverse pieces of giant cactus rib were bound across this frame with deer sinew. The transverse pieces did not extend to the rounded end, where a small coiled basket was lashed to hold the baby's head "so it will not be flat like an Apache." A small mat of shredded aloe fiber was laid over the giant cactus ribs, while another similar mat covered the baby and was lashed to the cradle with buckskin thongs.

285 231 Bird cages were made with two triangular or arch-shaped ends over which was tied a flexible mat of giant cactus ribs, made on the principle of the door.

285 For ceremonies such as the *vikita* or harvest festival, large structures were made, sometimes six feet square, representing clouds or mountains. The basis was a framework of flexible ocotillo rods *(Fouquieria splendens)*, bent into shape and lashed with thongs. These were carried on light platforms made like the shelf.

COIL WITHOUT FOUNDATION

285 415 The carrying net is no longer used since the Papagos have come into possession of wagons, but it has frequently been described by earlier observers (16, also Weltfisch unpublished).

The net itself was of two-ply aloe fiber *(Agave americana)* in the shape of an inverted truncated cone, the stitch being what has been called "coil without foundation." The cone was supported by four cross poles and fastened to the rim at the top by hair cord, which also passed through the hole at the bottom to be tied again with hair cord under-

000

and controls.

European Contact. The first important contact between Papagos and Europeans came about when Father Eusebio Kino brought his missionary program into what is now Sonora and Arizona in the late 1600's and early 1700's. Of greatest significance to the Papago was the Spanish introduction of cattle, sheep, goats, and horses. On several journeys into what is now southern Arizona Kino had stock from the missions of Sonora driven north, and cattle and horses quickly became established in many areas. Unfortunately for the Papago, the Apache in the mountainous areas to the north and east found Papago stock a strong lure for increased raiding activities; as the Apache now also had horses, they could travel far and fast, and both Pima and Papago were forced to defend themselves by means of more carefully organized military activities than had previously been common. The advantages of a greatly increased meat supply from cattle and the increased mobility made possible with horses, were at least partly offset by the continued Apache raids, which neither Papago nor Spanish measures were fully successful against.

In spite of Kino's vigorous beginnings, missionary activities were on a small scale and most Papagos remained largely isolated from Spanish contact, except indirectly through the new plants and animals that had been introduced. During the many years of revolution by which

19: Dobyns E-5 (1950) 1951 NU28 Papago NU28

Introduction

000 Time is catching up with the Papago Indians. In 1700
(23) they didn't have domestic animals (save the dog), any
(24) plants domesticated in the Old World, any knowledge of the wheel, and looked and acted very much like naked savages. They started catching up with the Europeans who intruded into their desert domain then, and have progressed through crisis after crisis successfully. But after 250 years gaining, it looks as though they may be slipping back in their race against us.

These dark-skinned natives live in a region where the human picture is repainted in lighter hues every year. Thousands of white-skinned Anglos move to the Southwest from other parts of the country seeking health, retirement, relaxation, or work. Once a Southwesterner was very different from people in the rest of the U. S.– now he is usually just someone from somewhere else.

177 As the region fills up with Anglos who are very much
648 alike, the people who were here before are profoundly affected. For many decades Spanish-Americans and Indians were too isolated to be much changed by a growing flood
(491) of Anglo immigration. But better roads made them accessible to tourists seeking strange sights, and drew for them a distorted picture of Anglo society and ways. Distorted as it was, it helped balance the strange picture sketched by the U. S. Indian Bureau's handful of employees who were almost the only Anglos Indians saw for decades.

361 Drainage (a) is no problem in southern Arizona be-
362 cause of the lack of rainfall. Even after a summer
[312] cloudburst the ground dries out for all practical pur-
poses in a day. And the domestic water of the region
comes from underground, so there is no question of lo-
cating camps on a watershed. In this study no large a-
[23] nimals were found in any of the labor camps visited,
except for a couple where Papago horse owners had brought
mounts to camp, and kept them out in the fields on pas-
ture.

Overcrowding camp sites (b) is another matter. It is difficult to define overcrowding in view of the small number of activities carried on in labor camps during picking season. But a number of southern Arizona camps are sandwiched between a road in front and a field fence behind, without space to drive a car between the rows of cabins. The average distance between dwelling units in Pima and Pinal county labor camps[1] is some 25 to 30 feet. In camps built of concrete blocks, the units are usually arranged in a straight line as apartments without space between. Often tents are spaced with only a yard between. Some spacious camps, on the other hand, leave 60 or 75 feet between units. Always a family's neighbors are very much present in Pima and Pinal county labor camps, however. Quarrels, and indeed most of the ordinary events of living, are quite audible next door. Privacy is difficult to achieve.

13 Since the valleys where cotton is grown in this re-
361 gion are already quite level, grading (c) isn't necessary.
In fact, it would only aggravate the dust problem, which
is acute. For the sandy soils of Pima and Pinal counties
cannot support much vegetation on the scanty rainfall.
The open soil blows readily. Heavy winds in the cotton
growing areas stop traffic on main highways regularly
each year while the plants are small and cannot hold the
soil--the dust load in the air becomes simply too thick
to see through.

362 Labor camps are located beside roads for ease of ac-
[361] cess. Except for a few along main highways which are
[363] paved, camps are covered with a thick dust coat every
time a vehicle drives by, throwing up a high cloud of
dirt behind. In dry, dusty air harvesters work, eat and
sleep.

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[1] 30 feet in 14 Pima county camps, and 25 in 22 Pinal county camps visited in this study (estimated distances.)

19: Dobyns E-5 (1950) 1951 NU28 Papago NU28

WHY the Desert People work

461 464 The Desert People pick cotton because they need the money they are paid for their labor. Cotton harvesting is hard work and dirty, but as one young Papago who picks 300 pounds a day told the author, "$9 a day is a lot of money to me!" Picking cotton is the most practical way for unskilled Papagos to earn any large sum, and Papago cotton pickers superficially come very close to the concept of the economic man governed only by "laws" of economics. But there are deep-lying cultural reasons for this attitude and need among the Desert People.

CHANGE IN VIEWPOINT

179 178 Originally the Papago people lived in a manner quite different than they do today. After unknown centuries in their harsh semi-desert environment, they had worked out a marvelous adjustment to unfriendly nature and a military balance with surrounding Indians. But the Desert People have had some contacts with Europeans for 250 years. During those two and a half centuries, more and more Papago behaviors have changed to approximate European behaviors. Forms, if not meanings, of Papago action are frequently much like our own. Of course, habits and thoughts most central to Papago culture remain Indian in character. The most complete and striking changes have probably occurred in the economic spheres of life.

174 431 437 [224] Once material goods apparently changed hands among the Desert People through a system of gift exchange. A successful hunter divided his kill among families in his village. Later the wife of a good farmer divided some of her tasty dishes so the hunter received an amount roughly equivalent to his meat. Each family was an economic unit if necessary, and no kindred looked beyond its numbers for aid.

175 [240] [241] [465] When Spanish missionaries reached the Desert People they set out to change the Indians spiritually and economically. They introduced new crops and domestic animals to the Papagos along with a new religion. Missionaries introduced the Desert People to a work-exchange system, in which Indians were paid in kind for harvesting and other work (and even for attending mass at first)

433 flooding and grasshoppers is won. This subsistence
24 scale, risky enterprise cannot long compete against
[461] the surplus-over-subsistence earned in the cotton fields.

The crops Desert People working in the 1950 cotton harvest did plant on the reserves were not even on a subsistence scale. The few beans or squash, the patch of melons they actually planted were no more than a supplement at most.

464 Clearly an important reason Papagos sell their la-
471 bor is that a high proportion do not even have flood
423 farms where they could try to farm if they wished to. Probably nearly half the Desert People picking cotton in 1950 had no fields.[1]

233 For Papagos who cannot farm, there is still a
433 possibility of raising cattle. However, xerophytic
[139] desert vegetation is not particularly well suited to
[132] fattening cattle--thorns don't make fat. Rainfall on reserve lands is very scanty, and good stands of grass are small and undependable.

● 231 Among Papago cotton pickers of 1950, nearly half
422 the families owned cattle.[2] However, some of them actually had only 1 cow, and the average number of head owned by each family was only a dozen.[3]

One difficulty for Papago cattlemen is that horses are kept by most families, taking up range that could support more beef animals. These horses are not especially good stock--no one raises horses for export.
[492] But the Desert People are still mainly in the pre-
[493] automotive age of transportation. If they don't walk, they generally must ride horseback or in a wagon pulled by horses. Over three-fourths of Papago cotton pickers in 1950 owned horses.[4] And each of these families kept
[69] 6 or 7 horses.[5] If it were not for an ordinance of the
[646] Papago Tribal Council restricting each family to not more than 10 head of horses, horse population of the reserved lands would undoubtedly be much higher.

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1 39 families gave information. 20 had their own fields, or 51%. (Only 2 were in irrigated projects, 5%) Fathers of 3 younger men had flood fields, 8%. So 41% had no flood fields in their extended family.
2 19 families of 40 questions owned cattle, 47½%.
3 8 families giving information owned 96 head, averaging 12 per family.
4 31 families of 40 questioned owned horses, 77½%.
5 31 families giving data owned 188, averaging 6.6 each.

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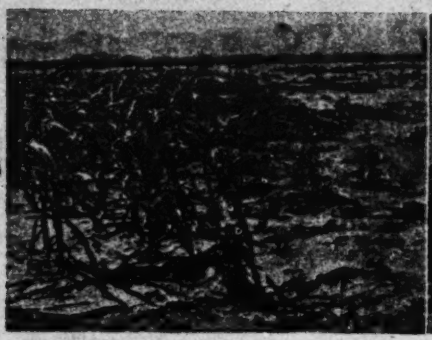
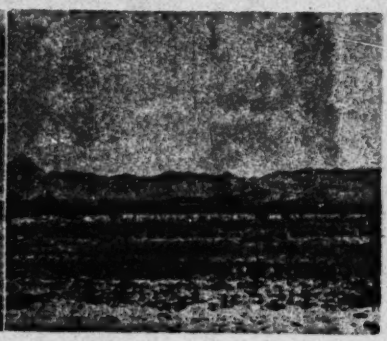
433

[133]



The corn-bean-squash fields are eroding and were always a gamble . . .



wheat stands are thin . . . and often don't ripen . . .

231
233
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the range is barren . . .

so cattle graze on cactus.

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691
422 As it is, the horses kept by each family seem to run just slightly under the number allowed on permits assigned by the Council. Among families picking cotton, the average permit was for 7 horses.[1]

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602
426
231 Papago harvest hands can go off and leave unplanted fields without worrying. But the laborer with cattle or horses has a problem. Three-fourths of the pickers with animals in 1950 left them in the care of some relative--a brother, son, father, or uncle.[2] This fact is apparently one main reason for members of the Papago extended family remaining on the reserves while others go off to pick cotton. Along with the pattern of leaving
[603]
[891] children with their grandparents so they can continue uninterrupted in Indian Bureau schools, it illustrates the continuing economic function of the Papago extend-
[594] ed family. Although the biological family is the main unit working for wages, in the wider economic picture it is the extended family which is the functioning unit.

The laborers who do not leave their animals in someone's care simply let them run loose on the reserve or occasionally a family will be able to bring its horses to a labor camp.

464 On the reserved lands themselves, the labor market is relatively restricted. Employers are limited to the U. S. Indian Bureau (hiring over 100 Desert People)[3] the Papago Tribe (hiring half a dozen Papagos full time) the state and county highway departments, trading posts, and mines. These jobs generally require some degree of skill and training, and are filled by those of the Desert People who have had more educational opportunities.
[799]
[891] A high proportion of these employees are Presbyterians because of the emphasis Papago converts place upon education, and good quality of denomination schools.

461
464 Many cotton harvesters recognize these fundamental reasons for their working. When they expressed their reasons for coming to the fields to labor, they said they came because "We don't have any fields," or "I didn't have a job," (the most frequent reply). Or some recognized the cause, but thought in the old mental paths of the Desert People: "There hasn't been any rain."

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[1] 13 of the families giving data had permits for 91 head.
[2] 9 of 12 families giving information did.
[3] Joseph, Spicer, and Chesky, 1949, p. 37.

3: Whited G-5 (1890) 1894 NT15 River Yumans
Papago NU28

311 In the spring of 1890 the land was allotted to the Indians in severalty, and it may now be divided as to quality as follows:

	Acres.
Land that is farmed	300
Land that is not now farmed on account of deficient water supply	1,200
Timbered land allotted	5,000
Mesa land, suitable for pasturage, allotted	30,000
Mountain land, including desert land that can be pastured 3 months in the year	20,000

The 1,200 acres not farmed on account of deficient water supply may be farmed when a better and more economical mode of irrigation is adopted than that now practiced by the Indians. The 5,000 acres of timbered land is what is usually called mesquite land, from which the Papagos procure their fuel and sell considerable quantities from year to year. The 20,000 acres of mountain land is next to worthless.

There are 94 heads of families on the reservation, and a little more than 3 acres of farming land (land that is farmed) are allotted to each head of a family. The 300 acres of allotted land are surveyed and staked out. The area of land cultivated is diminished, and no progress is being made in methods of farming. Most of their income seemed to be obtained from the sale of wood and hay cut on the reservation.

[434]

AGRICULTURAL PRODUCTS RAISED AND STOCK OWNED BY INDIANS FOR 1889-1890.

PRODUCTS, STOCK, AND LAND.	Number.	Value.
Total value of agricultural products		$6,170
241		
Bushels of barley	5,000	5,000
Bushels of corn	1,000	1,000
Bushels of vegetables	1,000	1,000
Melons	200	20
Pumpkins	1,000	100
Tons of hay cut	150	1,050
Total value of live stock		4,325
● 231		
Horses owned by Indians	200	3,000
Cattle owned by Indians	150	1,200
Domestic fowls owned by Indians	100	25
Acres under fence	16,000	.....
Fence made during year (rods)	7,200	.....

342 All of the Papago Indians living on reservations are in a village near San Xavier church. Their dwellings
493 are mostly rude adobe, with dirt roofs and few windows, and are almost destitute of furniture except the most
291 primitive. There are only 14 comfortable adobe houses. Many of the Indians own farm wagons, though their
797 farming tools are rude and unserviceable. The men all wear the civilized dress; the women also wear dresses similar to those worn by the whites, but leave off their shoes on ordinary occasions. It is claimed that 250 of the Indians living on the reservation are members of the Catholic church.

STATISTICS OF THE RESERVATION PAPAGOS.

162 Whole number living on the reservation		862
Males	1 504	
Females	179	
Children under 1 year of age		32
Males	21	
Females	11	
Number married		180
Number over 50 years of age who can read		30
Number who can read and write		30
Number who can use English enough for ordinary conversation		1 28
Number of children of school age		99

658 797 SCHOOLS.—The Catholic church has provided 2 neat, well-furnished schoolrooms adjoining San Xavier church, which will accommodate about 70 pupils. A school was maintained there during the year 1890 by the Sisters of the order of Saint Joseph, without pecuniary aid from the United States. The average attendance for the year ending June 30, 1890, was about 30. In addition to elementary studies the girls were taught sewing, crocheting, knitting, and minor household duties. A few of them became quite skillful in operating the sewing machine. The great drawback to the prosperity of the school was the irregularity in attendance. The school was again opened in September, 1890.

Pa 658 797

There is what is termed a "contract school" located at Tucson, which many of the Papago children attend. The school is established and supported in part by a missionary department of the Presbyterian church. The buildings are large, airy, well planned, and adapted to the purpose required. The pupils seem well disciplined and clean. The government pays a stated sum annually to the school for each pupil in attendance as reimbursement for board and clothing furnished. The school owns 5 or 6 good buildings, all in good condition and well furnished, also a farm of 43 acres. On account of lack of water but few garden vegetables are grown, but barley and wheat yield abundantly.

Some of the scholars are taught carpentering, painting, and plastering, and their work is quite satisfactory.

PAPAGOS LIVING OFF THE RESERVATION.

Pa 131 197

These Papago Indians live in the southern part of Pima county, along the southern border of the territory of Arizona. Their language is similar to that spoken by the Pimas. They roam over a country about 100 miles in width north and south and about 125 miles east and west, and there are a few small villages over the Mexican border but near the boundary line.

Pa 13 ● 231

The country in which they live consists of broad, open plains, divided by mountain ranges. The valleys or plains are arid, having no natural springs or running streams of water; yet after the summer rains these plains are covered with grass of a fine quality, and owing to the dryness of the air this grass is cured or dried on the ground and furnishes good, rich food for cattle during the remainder of the year.

Pa 361 312 342 [231]

The Indians select their dwelling places at the foot of the mountains near the mouth of the various canyons that open out into the plains. Small springs often flow through these canyons and sink into the sand. The Indians utilize these springs or sink wells into the sand, and thus secure the underflow from the springs. Their cattle feed out into the plains and return to these wells or springs to drink. Near these watering places, usually on an elevation, the Indians build their houses in their permanent villages of adobe, about 12 by 16 feet in area and about 8 feet in height. Small poles are laid on top and crosswise of the building, and on these are laid brush, with weeds or grass on the brush, the whole covered with about 6 inches of clay, which is impervious to water. The floor is of clay, and there is one doorway, but no windows. The doorway is sometimes closed with a dried beef hide. As a rule, they live on the outside of the house. The house contains no furniture except a little bedding and some cooking utensils.

Pa [352]

Pa 262 439 291

Their food consists of beef, dried wild fruit, dried mesquite beans made into a kind of bread, and wild game. During the summer rains they raise some vegetables, which they dry for winter use. They also sell or trade cattle to settlers in the Gila and Santa Cruz valleys for wheat and corn, which the women grind in their crude way into meal and flour. They have adopted the civilized mode of dress, and are gradually learning the use of soap.

The women of the tribe are virtuous and industrious, being in these traits far in advance of any other tribe in the territory.

Pa 461 648 Pa 46

There are 4,800 of this tribe living off the Papago reservation. With rare exceptions they are self-sustaining, have always been good citizens, and on many occasions have joined with the whites to assist in suppressing murderous Apaches. The principal occupation of the men is raising cattle and horses, and a little farming when they can find a piece of damp ground that will raise corn and vegetables, hunting, chopping wood around mining camps, and ordinary labor wherever they can find it. If there is any mixed blood in the tribe it is not perceptible.

There are several mining camps scattered throughout the country which these Indians inhabit, and in some of the large valleys wealthy men or companies have sunk wells 500 or 1,000 feet deep and established cattle ranches or ranges, and many Indians are employed about these camps and mines.

Pa 133 497 224

The country is somewhat difficult of access, as there are several mountain ranges running through it. The roads follow the valleys, and sometimes it is "a long way around where it is only a short way across". These mountain ranges abound in game, which the Indians hunt.

Pa 273 231

A month's travel in these Papago villages failed to reveal a single case of drunkenness, although there are frequent instances of drunkenness among Indians in the streets of Tucson. They have great numbers of horses and cattle, but it is impossible to form a correct estimate as to numbers. The horses are small and inferior, but the cattle are fully up to the average in size and quality.

Pa 648 721 797

These Indians as a tribe have always been exceptionally friendly to the white people. They have never received aid from the government. The little religion they have is a conglomerate of Roman catholicism, superstition, and Indian bosdeism. The Roman Catholic church established missions among them more than 150 years ago.

THE RESERVATION AND NONRESERVATION PAPAGO INDIANS, PIMA AGENCY.

Report of Special Agent C. W. Wood on the reservation and nonreservation Papagos of Pima and Cochise counties.

Pa 101 Pi [101] Pa [797]

TRIBAL NAME.—The Papagos and Pimas were formerly one tribe. Authorities differ as to the derivation and meaning of the name. One view is that Papago means "hair cut", another that it means "baptized". Neither of these meanings has any etymological basis or value. The most reasonable derivation of the term seems to be the following, derived from conversation with the oldest Indians: the division of the Pimas occurred from the labors

3: Whited G-5 (1890) 1894 NT15 River Yumans
Papago NU28

241 GRAIN.—The roving Papagos, those living off the reservation, raise only grain enough, principally wheat and corn, for their own use. Squashes, melons, and sugar cane make up the list of their common crops. Cultivation with them consists in scratching the ground with their stick plows and planting the seed. They pay no attention whatever to weeds. They inclose small fields of fertile ground in the mesas with brush fences and then plant after a rain of the right season. If it rains in November, they plant wheat. Rain in December will insure a good growth of straw, but rain in February will be necessary to mature the berry. The failure of rain in any of the 3 months will prevent planting or about ruin the crop which has been started. Owing to the uncertainty of propitious rains they obtain crops, apart from irrigation, only about once in 6 years.

Their wheat is white, a short, plump berry, of remarkably good quality. In the off years they resort to the reservation, raise a little grain, and "pack" it to their villages. Corn, squashes, sugar cane, and melons are raised after the summer rains.

252 412 They grind grain on an inclined stone, called a metáte, using a smaller stone, about the size of a brick, called a mano, as the crushing power. A handful of whole grain is placed at the top of the metáte, a part of it is scattered over the surface of the stone with a dexterous flirt of the hand, and it is then powdered by two or three energetic rubs with the small stone. The whole process resembles that of washing clothes with a washboard. The flour is caught in a bowl as it falls from the metáte, is clean and free from grit, and contains all the nutriment of the grain.

272 252 [234] Parched wheat, when ground in this manner, is mixed with water, forming a palatable drink, called penole. Corn is never ground raw, but after it has been boiled, and the meal is pressed and rolled up in soft corn husks and forms their bread for journeys. It is superior in taste, in my judgment, to any kind of corn bread made by the whites. They manufacture a kind of cheese from milk, but have no process for butter making.

231 STOCK.—The Papagos have small herds of stock and droves of horses. These constitute their substance, but each possession can not be large in view of the uncertainty of water. Nearly every family has a few fowls. Their wants are few, and these are easily satisfied. They are self-supporting, and no charge on the government for either food or clothing.

493 An occasional farm wagon was found in a village, but in Ki-ki-wah there were 4. This village is about 90 miles from Tucson and 10 from the Mexican line.

224 [439] GAME.—Various species of deer abound, and in season the markets of the whites are supplied with venison by the Indians. Mountain sheep and goats are also brought in by them, but in less numbers than deer. Black and cinnamon bears are occasionally killed. The cotton-tail rabbit abounds, and is in demand for the table. The flesh is white, and fully equal to chicken in delicacy of flavor. Dangerous wild animals are also killed by the Indians in considerable numbers. The most formidable of these is the mountain lion. This animal destroys young stock, and is therefore hunted with zeal by the Papagos. The pelts possess a trifling value. The wildcat and civet cat are very numerous. The coyote, fox, jack rabbit, and skunk make up a group of animals which are pests, though not dangerous ones. The jack rabbit is sometimes used for food.

223 BIRDS.—Among the birds useful to Indians are the quail, dove, mocking bird, and cardinal bird. These are trapped with great success by them, the quail and dove for food, the others for household pets, their sale forming quite an income. Hawks, owls, and crows abound. Wild ducks, geese, bitters, heron, and snipe are killed in their migration back and forth between Mexico and California. It will be seen that the Indians have many food resources on wing and foot, valuable for consumption or sale.

342 333 DWELLINGS.—No tents are used among the Papagos, and about two-thirds of the houses are made of adobe, the rest being constructed of mud and brush. They consist of but one room, and have dirt roofs laid on rafters of small trees. There is no uniformity as to the size of the houses. The adobe bricks are made in an open frame of four compartments from a gray mud or clay mixed with short cut straw or hay. This mold is placed upon the ground, filled with the soft adobe, packed firmly, and then the frame or mold is removed and the brick left to dry. The usual size of a brick is 4 by 9 by 18 inches.

[356] The Papagos are cleanly in their habits. They sweep the dirt floors of their houses, and in some cases the ground around them. No vermin of any kind was found in any of their houses.

291 [177] CLOTHING.—The men wear boots or shoes, pants and shirts, and straw or felt hats. A canvas jacket is worn on cool days or on a journey. The women wear shoes, stockings, and skirt, and waist blankets are quite common with both sexes, with the women serving as shawl and head covering. The women sew nicely by hand, using thimbles. They also use sewing machines, of which there were three in Ki-ki-wah.

181 [548] [595] MORALS.—The men were generally represented to me to be truthful and honest and the women to be virtuous. Prostitution is said to be unknown among them. This may be due to the fact, as some claim, that wives are taken and abandoned at will. Occasionally a man was found with 2 wives.

Their honesty was tested in various ways on our trip. The outfit of 2 wagons was left unguarded for a whole day when we made the trip from Tecolote to Fresnal and neighboring villages, and not a thing was disturbed. Twice after we left villages forgotten articles were brought to us by men on horseback. These articles would not have been missed, and might have been kept by them with perfect impunity. The Papagos are not addicted to

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